
Appendix F

Disturbance Cap Management

APPENDIX F

DISTURBANCE CAP MANAGEMENT

DISTURBANCE CAPS

The sub-regional alternative would manage disturbance via the Northwest Colorado Management Zones (**Figure I-1**, Greater Sage-Grouse WAFWA Management Zones and NW CO Management Zones, in **Appendix B**, Figures) in two related but distinct caps, including the anthropogenic disturbance cap and the total disturbance cap.

Alternative D limits anthropogenic disturbance in PPH to less than 5 percent of ecological sites capable of supporting 12 percent canopy cover of Wyoming sagebrush, or 15 percent canopy cover of mountain sagebrush. The reference to ecological sites is made to include areas not currently supporting sagebrush but with the potential to do so.

The reference to ecological sites supporting sagebrush is intended to focus disturbance cap management on the most preferred sagebrush habitat. For example, disturbance in pinyon-juniper stands would not be applied to the cap. **Figure F-1**, Typical Sagebrush Distribution, depicts typical sagebrush distribution in the landscape. Sagebrush occupies the concave locations in the landscape where snow accumulates. The shallower soil sites do not support contiguous stands of sagebrush, so disturbance could be located there to avoid counting against the cap.

This cap management approach does not suggest that GRSG use only the most preferred sagebrush habitat. Consequently, the Northwest Colorado habitat map does not attempt to make this localized distinction, and most of the provisions of Alternative D apply to habitat designations on the Colorado map without reference to specific ecological sites. However, under Alternative D, management of the disturbance cap is restricted to this preferred sagebrush habitat.

Figure F-1: Typical Sagebrush Distribution



Consideration was given to including riparian habitat in the management of the disturbance cap. These areas do provide important summer habitat, but most BLM land use plans already restrict disturbance in riparian habitat. A 5-percent disturbance cap on these areas is not acceptable, and surface-disturbing activities in riparian areas are seldom approved. Consequently, the inclusion of riparian acreage in the cap would result in more total acreage under the cap, allowing for additional disturbance in sagebrush habitat.

Anthropogenic disturbance refers to physical removal of sagebrush habitat, including paved highways, graded gravel roads, transmission lines, substations, wind turbines, oil and gas wells, pipelines, landfills, homes, and mines. (See *Assumptions for Analysis for Disturbance Caps*, below, for a description of the assumptions for analysis for the disturbance caps.) Percentages would be calculated for each Colorado GRSG MZ, independent of surface ownership. Only the physical disturbance applies to this cap, and cap management includes no buffers to address disruptive issues. While disruptive issues would be considered in the site-specific analysis when surface-disturbing proposals are being authorized, disruptive impacts are not considered anthropogenic disturbance under the cap. (Ground rules defining when a reclaimed site is deemed undisturbed are included in **Appendix G**, Surface Reclamation Plan.)

A goal associated with Alternative D is to retain in sagebrush habitat, for each management zone, a minimum of 70 percent of the ecological sites capable of supporting 12 percent canopy cover of Wyoming sagebrush or 15 percent canopy cover of mountain sagebrush. Consequently, the BLM would manage a total disturbance cap of less than 30 percent, to include all loss of sagebrush

from all causes, including anthropogenic disturbance, wildfire, plowed field agriculture including upland hay, and vegetation treatments. This cap would be applied to all designated habitat in the entire management zone. Sites capable of supporting sagebrush habitat would count against the cap until they have recovered to at least 12 percent canopy cover in areas dominated by Wyoming big sagebrush and to at least 15 percent in areas dominated by mountain big sagebrush (Bohne et al. 2007). Achievement of this 70 percent goal would be the basis for off-site mitigation associated with management of the anthropogenic cap. Some situations require special consideration, as follows:

- In Northwest Colorado, cheatgrass seldom occurs in mappable stands. Only mappable stands would count against the disturbance cap.
- Pinyon-juniper encroachment is also difficult to map, and only mappable stands would count against the cap.
- GRSB make limited use of irrigated hay fields. Telemetry data from CPW suggests that areas in irrigated hay fields within 150 feet of intact sagebrush stands provide valuable GRSB habitat, and there is no mention of irrigated hay fields being a negative in the NTT report (NTT 2011). Consequently, in Alternative D, irrigated meadows would not count against the cap.
- Treatments of sagebrush, such as prescribed burns or chopping operations, can be positive because they can enhance herbaceous understory, as long as sufficient sagebrush is in place to support the existing GRSB population. Treatment plans would be designed to avoid concentrating treatments in priority habitat. In management zones that feature a mix of priority and general habitat, the cap would be managed so that treated area ratios approximate the ratio of priority and general/connectivity habitat in the management zone.

The initial calculations and the analysis in this document are based on sagebrush maps created using the Regional GAP Analysis Project data, but implementation would be based on site-specific information wherever it is useful. Areas currently dominated by sagebrush, or specially identified by CPW as contributing to the health of GRSB populations, would be included in the analysis and calculations, independent of ecological site maps.

Private Lands and Valid Existing Rights

Disturbance caps apply to all surface ownership in the management zone under all alternatives. However, the BLM has no authority to restrict the activities of private surface landowners. Consequently, no requirement of private landowners to consult with the BLM is expressed or implied. The BLM would not inventory private lands, nor does the BLM intend to monitor the activities of private landowners. However, the BLM would map disturbances that are already of public record and would consider impacts on private lands when a

proposed project has a federal nexus. Known disturbance on private surface would be considered using air photos as appropriate and included in disturbance cap calculations. Consequently, decisions made by private landowners would affect what the BLM can authorize on land that it administers in the Colorado management zone.

Management of valid existing rights would be similar to the management of private land. The BLM has no authority to deny valid existing rights; consequently, decisions made by entities with valid existing rights would affect what the BLM can authorize for other potential users of land it administers in the management zone.

Mitigation

Mitigation can take many forms. Most projects include design features that reduce the ecological footprint and environmental impacts. Off-site mitigation can be direct or indirect.

- Direct mitigation includes actions that create sagebrush or riparian habitat where it did not exist. Reclaiming old disturbance into sagebrush habitat could offset disturbance from a proposed project to the extent that a project would not count against the cap, or cap space would be created. Direct mitigation is preferred because it creates or maintains cap space. Alternative D does not include a cap and trade provision, and no elaborate long-term tracking process is included. However, authorized officers may credit and reserve cap space to a specific operator for near-term foreseeable operations in the same general project area. Agreements relating to crediting and reserving cap space to an individual entity would be documented in environmental assessments prepared for specific operations.
- Indirect mitigation benefits GRSG but does not necessarily maintain or create cap space. Easements on private lands that preserve sagebrush and funding of research are examples of mitigation that would not affect disturbance cap calculations but may warrant approval of projects that use cap space.
- Treatments that check the encroachment of pinyon-juniper into sagebrush or cheatgrass (or other weed) infestations can be direct or indirect. This encroachment presents a unique paradox because the pinyon-juniper encroachment counts against the cap, but stand replacing wildfire or treatments would also count against the cap. Off-site mitigation that targets the pinyon-juniper component without removing the intermingled sagebrush component of a stand would be particularly valuable. Some treatments may be deemed direct mitigation because they create sagebrush habitat; others may be deemed indirect because they enhance only existing stands

1 already classified as contributing to undisturbed sagebrush habitat in
2 the context of the cap management database.

- 3 • When practical, mitigation should occur in the same management
4 zone as the surface-disturbing activity. However, there could be
5 situations where the best opportunity is elsewhere. In this
6 circumstance the acreage disturbed would count against the cap in
7 one management zone and, assuming the mitigation is direct, would
8 put acreage back under the cap in another management zone. It is
9 envisioned that these location inequities would balance out over the
10 long term, and it may prove appropriate to target mitigation in a
11 specific management zone, independent of the location of the
12 proposed surface-disturbing activity. A large-scale imbalance in cap
13 space may warrant an authorized officer to preclude or require
14 mitigation in a management zone. However, as often as possible, the
15 intent would be to take opportunities where they are most readily
16 available.

17 **Exemption from the Anthropogenic Disturbance Cap**

18 A key provision of Alternative D is to limit disturbance in any management zone
19 to less than 5 percent. The standard exception is as follows:

20 The authorized officer may authorize disturbance in excess of the 5-percent
21 disturbance cap without requiring additional mitigation with concurrence from
22 CPW under the following scenario: Where data-based documentation is
23 available to warrant a conclusion that GRSB populations in the applicable
24 Colorado GRSB MZ are healthy and stable at objective levels, or increasing, and
25 that a specific proposal for development would not adversely affect GRSB
26 populations due to habitat loss or disruptive activities.

27 This exception standard has been designed to ensure that sufficient data is in
28 place to warrant the exception. In most cases this exception could require
29 project proponents to fund studies necessary to secure the data-based
30 documentation requirement. These contrasts with a standard where data would
31 be required to prove a proposal would adversely affect GRSB. If the authorized
32 officer finds that the data available is insufficient or inclusive, the exception
33 would not be granted.

34 Direct acre-for-acre no net loss mitigation in the same management zone would
35 not, by definition, require an exemption because the proposal would not affect
36 cap space acreage. However, if the mitigation were to occur in a different
37 management zone, a cap space exemption would be required. If direct
38 mitigation in a different zone is approved on a no net loss basis, data-based
39 documentation related to GRSB populations would normally not be required.

Authorizations within the Disturbance Cap

Independent of the surface disturbance caps, the intent of Alternative D is to avoid, minimize, and mitigate surface-disturbing and disruptive activities that could adversely affect GRSG habitat or the ability of GRSG to use it. Alternative D includes many provisions designed to achieve this intent, independent of the disturbance cap.

The authorized officer would review proposals that include surface-disturbing and disruptive activities to ensure that the intent of the alternative is being applied. Proposals that do not appropriately avoid, minimize, and mitigate surface-disturbing and disruptive activities would not be approved. All new public land proposals in priority habitat should include design features and mitigation that makes the project neutral to GRSG. Some packages may include indirect mitigation, so they would still result in acreage that would be counted against the cap, but none would be approved if an adverse effect on GRSG populations is reasonably foreseeable.

Surface-disturbing activities that do not exceed the disturbance caps would be approved, subject to program-specific provisions found in Alternative D, with the following stipulation: as long as there is a reasonable presumption that the proposal and disturbance would not entail a decline of GRSG populations due to habitat loss or disruptive activities. It is presumed that actions by private landowners and other entities exercising valid existing rights would accumulate and result in an important loss of cap space. Because this accumulation cannot be prevented by BLM decision making, Alternative D provides for careful consideration of new authorizations under BLM jurisdiction.

The potential exists for a rush of project proposals, wherein proponents submit projects in anticipation of declining cap space. The authorized officer may consider the relative value to society in terms of employment, tax revenue, and project need versus the potential for impacts on GRSG. Proposals that appear to make a disproportionate adverse impact on GRSG, compared to the relative value to society, may be deferred or rejected because the authorized officer determines through environmental documentation that the project is not a prudent use of cap space.

Prioritization

Alternative B (the NTT alternative) makes consistent references to prioritizing actions in GRSG habitat. Alternative D presumes that a more flexible approach would be necessary, given the magnitude of situations that arise in Northwest Colorado. In order to preclude unintended consequences, Alternative D uses the following guideline to assign an appropriate priority to GRSG issues: Consider GRSG habitat requirements in conjunction with all resource values managed by the BLM, and give preference to GRSG habitat unless site-specific circumstances warrant an exemption.

ASSUMPTIONS FOR ANALYSIS FOR DISTURBANCE CAPS

The assumptions for analysis for the disturbance caps are provided in the following tables.

Table F-1
Alternative A¹ Preliminary
Disturbance Data – Acres per
Colorado Management Zone
(All Designated Habitat)

Colorado Management Zone	Total Acres (ADH)
1	15,200
2	172,900
3	547,500
4	244,400
5	258,300
6	307,900
7	83,300
8	252,300
9	423,200
10	285,700
11	412,900
12	18,300
13	269,700
14	148,300
15	47,600
16	11,300
17	353,700
18	19,200
19	225,300
20	40,600
21	10,700
Total	4,148,300

Source: BLM 2013

¹No disturbance cap would be applied

Table F-2
Alternative B¹ Preliminary Disturbance Data – Existing Disturbance in PPH

Colorado Management Zone	Total Acres PPH	Anthropogenic Disturbed Acres	Percent of Management Zone	Total Acres Disturbed	Percent of Management Zone
1	13,700	10	0.1	400	2.9
2	100,800	700	0.7	1,300	1.3
3	181,000	1,100	0.6	3,800	2.1
4	195,200	1,300	0.7	31,600	16.2
5	243,100	2,100	0.9	22,800	9.4
6	133,100	1,700	1.3	6,900	5.2
7	47,600	200	0.5	700	1.6
8	150,200	2,600	1.8	19,400	12.9
9	268,100	3,800	1.4	56,600	21.1
10	105,800	900	0.9	2,100	2.0
11	383,900	6,500	1.7	23,700	6.2
12	0	0	0	0	0
13	207,900	4,100	2	15,200	7.3
14	101,200	2,000	2	2,400	2.4
15	13,000	200	1.8	2,100	16.2
16	7,700	600	7.9	600	7.9
17	212,800	3,300	1.6	7,100	3.3
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
Total	2,365,100	31,110		196,700	

Source: BLM 2013

¹A 3-percent disturbance cap would be applied in PPH

Table F-3
Alternative C¹ Preliminary Disturbance Data – Existing Disturbance in ADH

Colorado Management Zone	Total Acres APH	Anthropogenic Disturbed Acres	Percent of Management Zone	Total Acres Disturbed	Percent of Management Zone
1	15,200	10	0.0	500	3.1
2	172,900	1,400	0.8	4,200	2.4
3	547,500	25,000	4.6	35,700	6.5
4	244,400	1,500	0.6	32,500	13.3
5	258,300	2,200	0.9	23,500	9.1
6	307,900	4,400	1.4	26,800	8.7
7	83,300	400	0.4	2,000	2.3
8	252,300	7,800	3.1	39,300	15.6
9	423,200	10,300	2.4	73,400	17.3
10	285,700	4,700	1.6	12,900	4.5
11	412,900	6,800	1.7	25,600	6.2
12	18,300	100	0.7	100	0.7
13	269,700	6,400	2.4	18,700	6.9
14	148,300	2,800	1.9	3,700	2.5
15	47,600	800	1.7	3,600	7.6
16	11,300	800	7.3	800	7.3
17	353,700	5,700	1.6	11,300	3.2
18	19,200	20	0.1	1,300	6.6
19	225,300	3,800	1.7	12,500	5.5
20	40,600	1,100	2.8	1,800	4.4
21	10,700	200	1.9	600	5.6
Total	4,148,300	86,230		330,800	

Source: BLM 2013

¹A 3-percent disturbance cap would be applied in ADH

Table F-4
Alternative D¹ Preliminary Disturbance Data – Existing Disturbance in Ecological Sites
Supporting Sagebrush in PPH

Colorado Management Zone	Total Acres PPH	Anthropogenic Disturbed Acres	Percent of Management Zone	Total Acres Disturbed	Percent of Management Zone
1	11,000	10	0.1	400	3.4
2	65,600	400	0.6	600	1.0
3	143,100	800	0.5	3,200	2.2
4	163,000	1,100	0.6	24,700	15.2
5	200,800	1,700	0.9	18,100	9.0
6	89,500	1,100	1.3	2,000	2.2
7	37,800	200	0.4	400	1.2
8	128,400	2,300	1.8	17,700	13.8
9	198,900	2,800	1.4	35,300	17.8
10	86,900	700	0.8	1,200	1.4
11	295,700	5,800	1.9	22,900	7.7
12	0	0	0	0	0
13	154,400	3,000	1.9	13,400	8.7
14	77,300	1,600	2.0	1,700	2.2
15	5,000	50	1.0	400	8.1
16	5,200	400	8.1	400	8.2
17	62,900	1,400	2.2	2,300	3.7
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
21	0	0	0	0	0
Total	1,725,500	23,360		144,700	

Source: BLM 2013

¹A 5-percent anthropogenic disturbance cap and 30-percent total disturbance cap would be applied in ecological sites supporting sagebrush

REFERENCES

- BLM (United States Department of the Interior, Bureau of Land Management). 2013. Geographic Information Systems data. Unpublished data. BLM, various District and Field Offices, CO.
- Bohne, J., T. R. Rinkes, and S. Kilpatrick. 2007. Sage-Grouse Habitat Management Guidelines for Wyoming. Wyoming Game and Fish Department, Cheyenne, WY.
- NTT (Sage-Grouse National Technical Team). 2011. A Report on National Greater Sage-Grouse Conservation Measures. December 2011.